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Clinicians with dyslexia: a systematic review of effects and strategies

Rachel Locke, Samantha Scallan, Richard Mann and Gail Alexander

Abstract

Background

For educators, an awareness of the impact of dyslexia on learners in the clinical workplace is vital: first, to be able to identify whether dyslexia may underlie certain traits and behaviours; and second, to be able to provide appropriate advice and support when dyslexia is identified. We reviewed the primary research evidence concerning the effects of dyslexia on clinicians (in or post training) in the workplace, and adaptive strategies ('workarounds') in use.

Methods

A systematic search of literature was undertaken, followed by a narrative review of studies selected as meeting the inclusion criteria. The review used *a priori* research questions and focused on studies based on primary research evidence.

Results

The review identified five key studies on dyslexia and qualified doctors or nurses. The impact of dyslexia on doctors can include: writing and calculating prescriptions, writing patient notes, prioritising and making referrals. Strategies to minimise the effects of dyslexia include the use of adaptive technologies, the need for more time for mentors and supervisors, and awareness of 'enabling' and 'disabling' environments.

Discussion

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The difficulties associated with dyslexia are varied and may be unexpected. Medical educators must therefore be aware of dyslexia and its impact. When supporting a trainee with dyslexia, there is guidance available but educators may struggle to identify strategies and resources that are evidence based, so further research is required.

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Background

An increasing number of medical students (from 1.3% in 2003 to 1.7% in 2007) are declaring dyslexia as a specific learning difficulty (SpLD) on entry to medical school, something acknowledged by the BMA in 2009 [1]. The implication of an increasing number of doctors with dyslexia is that it may impact on their performance in the workplace and consequently on patient safety and fitness to practice. This is particularly the case where the dyslexia is unrecognised or undisclosed, as coping strategies may have been used to mitigate the effects on performance. Tracking the increasing prevalence of dyslexia at medical school is important; in the first instance as it is a requirement of the Equality Act 2010 for reasonable adjustments to be made to support students; and second, as there are significant implications for both undergraduate and postgraduate medical education providers when placing students in the clinical environment. However this data is not currently systematically collected. The literature indicates that perceptions may be held regarding the ability of healthcare professionals to practise safely [2,3], yet such concerns are not supported by evidence [4]. Local anecdotal data for the assessment of Wessex postgraduate medical and dental trainees indicates that the number identified annually with dyslexia has increased from 2 in 2009 to 7 in 2011. For these doctors, there have been implications for their skills and performance in the workplace, which they have addressed through developing compensatory strategies. In recent years legislation around disability discrimination has required that medical schools and employers make reasonable adjustments to enable people with disabilities, including dyslexia, to work more effectively. Doctors with dyslexia may face extra challenges in the effective performance of their clinical duties. Dyslexia can have an impact on the individual in various ways (see Box 1). Although evidence is limited about the way in which features of dyslexia may combine, it is also suggested that in some cases, especially on late identification, dyslexia may co-occur with

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other behaviours, such as increased anxiety and susceptibility to burnout and depression [4].

Transition points in training or career are just such points; where previously a doctor may have made use of strategies to cope with the impact of dyslexia, these can be destabilised and the doctor can begin to struggle. Such transition points are numerous, and would be from undergraduate to foundation to speciality training.

- Phonological awareness
- Processing speed
- Memory function
- Visual processing
- Linguistic recall (i.e. word finding ability)
- Sequencing skills
- Spatial awareness
- Mental calculation

Box 1: Ways in which dyslexia can impact on individual

For educators, an awareness of the impact of dyslexia on learners in the clinical workplace is vital, first to be able to identify whether dyslexia may underlie certain traits and behaviours, and second, to be able to provide appropriate advice and support when dyslexia is identified.

This systematic review came about as a consequence of a referral to a local Professional Support Unit (PSU) that supports doctors in training. In the course of identifying and addressing the issues, of which dyslexia was one, the PSU became aware of the potential for a lack of available evidence-based practice to be able to provide appropriate advice and support to doctors when dyslexia is identified and the strategies that can assist in the workplace.

Therefore the research question the review set out to address was:

- What is the primary research evidence concerning the effects of dyslexia on clinicians in the workplace, and adaptive strategies ('workarounds') in use?

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Methods

A protocol to guide the search was drawn up by two researchers and a clinician who defined the searching that would take place and where, and how the quality of the results was to be evaluated and interpreted. A systematic literature search and review was conducted. The databases searched were Medline, ASSIA, Pubmed, Web of Science, SSI, CINAHL and peer-reviewed conference abstracts and proceedings using the following keywords and phrases in various combinations: doctor, physician, nurse, dyslex*, dysprax*, dyscalcul*, “specific learning difficulties”, “learning difficult*” “learning disability”. The following exclusion criterion was used: date (pre 2002). Legislation in 1995 (The Disability Discrimination Act) classed dyslexia as a disability and further legislation in 2001 (The Special Educational Needs and Disability Act) formalised the responsibility of organisations to make reasonable adjustments for disability, consequently 2002 was chosen as the cut-off date.

A two-stage process of sifting the references identified was used: first the titles and abstracts were read to determine the relevance of the paper to the research questions. Two researchers and the clinician worked independently and shared all references deemed relevant. The review team was mindful of how selected studies were evaluated. Following Petticrew and Roberts, we took a typological approach to assessing papers rather using a hierarchy of evidence approach, i.e. the appropriateness of different types of study design for addressing different types of research questions [5]. All study designs were included however those not collecting primary evidence about the impact of dyslexia and strategies to minimise the effects, were excluded. The search revealed that some literature exists in book form, however this was excluded as, in the main, it did not consider doctors /nurses specifically, and the publications tended to be practical guides, rather than based on primary evidence. Also excluded was grey

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/non-peer reviewed literature that concerned personal accounts of experience or newspaper articles/ opinion pieces about dyslexia and doctors. At stage two, those deemed relevant were retrieved and reviewed by the researchers and the results of the narrative analysis were checked with a clinician and a dyslexia practitioner with experience of supporting health professionals including doctors, nurses, podiatrists and physiotherapists with dyslexia. This process is described in the Prism diagram shown in figure 1. We then conducted a critical appraisal of the studies using the a priori research question. We were concerned with the methodological rigour of the primary studies and the outcomes of the research in terms of the effects of dyslexia on clinicians in the workplace, and the workarounds employed.

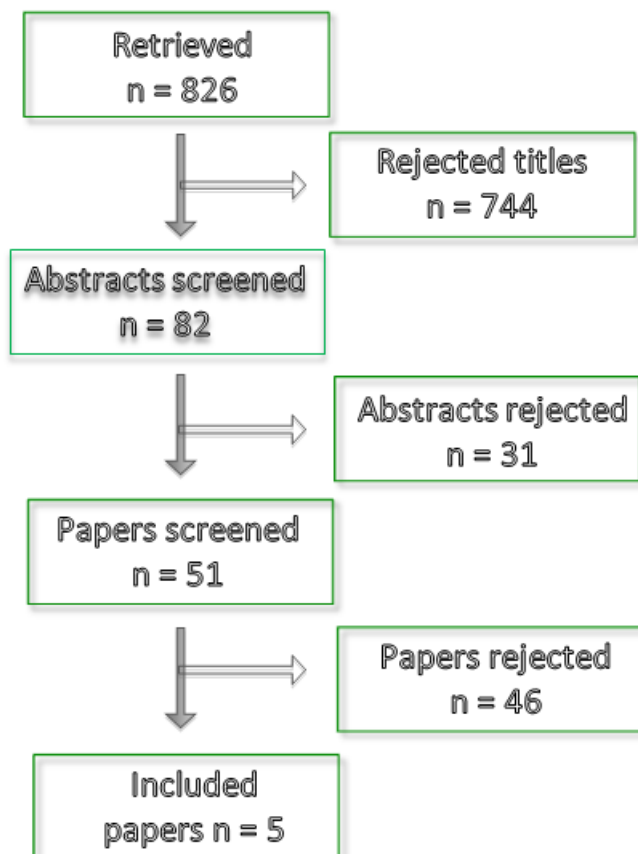


Figure 1: Study Selection and Exclusion

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Results

The results of the systematic review are presented below. First, we describe the field of enquiry, before presenting the papers identified.

We found five studies on dyslexia and qualified doctors or nurses that fitted the research question as being based on primary research evidence (see table 1). This evidence has been generated through small scale, qualitative studies using a limited number of data collection methods - interview or focus group based - and small numbers of participants [3 to 18 participants].

There were two relevant studies found in the medical education literature, both derived from academic doctoral work and were visible in the conference proceedings and/or academic profiles of researchers in the field. One was included as it concerned a pilot study [6]. The other was a project in its infancy [7].

Four studies came from the nursing literature: three were based on nursing students on placement. This literature was found to be quite old, with the most recent paper being published in 2008 [8]. Consequently some of the strategies suggested, in particular those concerning assistive technology (e.g. browsealoud (see www.gmc-uk.org)), have developed significantly and in ways not anticipated at the time of the research.

The papers recorded that the impact of dyslexia on doctors can include: writing and calculating prescriptions, writing patient notes, prioritising and making referrals. Adaptive strategies or 'workarounds' highlighted:

- Use of adaptive technologies to minimise the effects of dyslexia; such as voice activated software, spell checkers, use of handheld devices;

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- Practical strategies: colour coding paperwork; rehearsal of difficult tasks; quiet place to work, and the need for mechanisms to check work;
- The need for more time for supervisors/mentors; awareness of ‘enabling’ and ‘disabling’ environments.

Domain	Evidence of strategies in use
Qualified doctors	Spell checkers, voice activated software and colour coding indexes [6].
Nurses	<p>1) Access to a quiet environment to complete paperwork, use of appropriate learning aids to assist spelling, reading and calculation, and use of visually distinctive aids (e.g. overlays which are coloured acetate to use when reading to alleviate visual stress) [8].</p> <p>2) Informal /formal support networks, portable information technology equipment, personal strategies e.g. rehearsing difficult tasks including handover reports [9].</p> <p>3) More time and quiet place to complete clinical documentation [10].</p> <p>4) Double-check administration of medication, spell checkers, workplace environment considerations to make it dyslexia-friendly, repeat names to help remember them [11].</p>

Table 1: Summary of evidence for strategies in use

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Discussion

This systematic review is important in terms of the information found as well as in terms of the information not found. By mapping the field we have been able to identify the direction of current research and where it could be extended and progressed. Our findings indicate that:

- Future areas of research could consider: the practical strategies or ‘workarounds’ used by doctors and other clinical staff in the workplace to provide an evidence base for those supporting clinicians with dyslexia; the effect of dyslexia on specialty career choice.
- Existing research is derived from data collected by interview, thus researchers need to consider using other methods or research approaches to broaden knowledge in the field. Due to the small numbers of doctors identified as having dyslexia, approaches to research which require large samples are unlikely to be appropriate.
- Existing research tends to be small-scale and short term, with the exception of one longitudinal study [9]. There is scope to develop projects that are longitudinal and follow participants across different clinical contexts.

This review is relevant to clinical educators who need to be aware of the different ways in which dyslexia may manifest, and be knowledgeable about the support available. The difficulties associated with dyslexia are varied and may be unexpected. As clinical educators may not be knowledgeable about dyslexia and its impact, there is therefore a need for promoting greater awareness and understanding of the implications for patient safety. When supporting a trainee with dyslexia, there is guidance available but educators may struggle to identify strategies and resources that are evidence based, so further research is required.

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